

What the invention claimed is:

1. An anti-fog sheet material comprising:
 - a transparent plastic base sheet having capillary tubes in top and bottom surfaces thereof at 100~150 meshes, and a thickness about 5 0.13~0.55mm; and
 - an anti-fog film coated on the bottom surface of said transparent plastic base sheet, said anti-fog film being formed of a liquid mixture of sucrose fatty acid esters and ethyl alcohol and water, said liquid mixture having dry matter 39~43%, acid value less than 3.0mg KoH/g, residue on ignition less than 10 0.6%, arsenic content less than 1ppm, and heavy metals less than 10ppm.
2. The anti-fog sheet material as claimed in claim 1, wherein said anti-fog film has a thickness about 30nm~300nm.
3. The anti-fog sheet material as claimed in claim 1, further comprising a stripping film coated on the top surface of said transparent plastic base sheet.
- 15 4. An anti-fog sheet material fabrication method comprising the steps of:
 - (a) preparing a softened hot base sheet material obtained from a polymeric compound through an extruder, and then processing the base sheet material through the M.D.O (Machine Direction Orienter) of a rolling machine 20 into a primarily treated plastic base sheet material having coarsened top and bottom faces of about 100~150 meshes, and then processing the primarily treated plastic base sheet material through the T.D.O (Transverse Direction Orienter) and stretching rolls of the rolling machine so as to obtain a secondarily treated plastic base sheet material;
 - 25 (b) delivering the secondarily treated plastic base sheet material thus

obtained from step (a) through gaps in between the rolls of negative electrode and the rolls of positive electrode in a corona machine to apply a corona treatment to the secondarily treated plastic base sheet, thereby causing capillary tubes to be formed in top and bottom surfaces of the plastic base sheet material;

- 5 (c) sending the corona treated plastic base sheet material to a coating machine to receive an anti-fog coating treatment where the bottom surface of the corona treated plastic base sheet is coated by a first applicator wheel assembly with a layer of anti-fog film formed of a liquid mixture of sucrose fatty acid esters and ethyl alcohol and water, such liquid mixture having dry matter 39~43%, acid value less than 3.0mg KOH/g, residue on ignition less than 0.6%, arsenic content less than 1ppm, and heavy metals less than 10ppm; the top surface of the corona treated plastic base sheet is coated by a second applicator wheel assembly with a layer of stripping film;
- 10 (d) sending the coated plastic sheet material to a dryer to receive a drying treatment at about 76°C~105°C, and then cooling the dried plastic sheet material to a temperature level below 40°C; and
- 15 (e) using a take-up wheel unit to roll up the finished sheet material into a roll.

5. The anti-fog sheet material fabrication method as claimed in claim 4,
20 wherein said first applicator wheel assembly comprises a meshed applicator wheel having about 250 meshes; said second applicator wheel assembly comprises a meshed applicator wheel having about 300 meshes.

6. The anti-fog sheet material fabrication method as claimed in claim 4,
wherein said polymeric compound for said base sheet material contains 98 wt%
25 base material selected from one of a plastic group including PS, PP, PET, PVC,

and PE, and 2 wt% functional plastic compound containing styrene 67~73wt%,
27~33wt% butadiene, and additive less than 1% .